

Amendments to the Claims

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

1. (Previously Amended) A method for minimizing the aggregation tendencies of human kappa-IV immunoglobulin light chain, the method comprising:
 - a) identifying SMA or LEN mutation in the amino acid sequence of the light chain that leads to fibril formation;
 - b) substituting each mutation into SMA or LEN to identify the residues of a peptide that contribute to fibril formation;
 - c) synthesizing peptides spanning most of the light chain variable region that interacts with an endoplasmic reticulum chaperone selected from the group consisting of BiP, Hsp 70, and combinations thereof;
 - d) determining the V_L-derived peptides for their ability to prevent fibril formation in vitro wherein the peptides are selected from the group consisting of TDFTLTI (SEQ ID NO: 5), FTLTISS (SEQ ID NO: 1), FTLKISR (SEQ ID NO: 6), FTLEISR (SEQ ID NO: 12), LTLKLSR (SEQ ID NO: 13) and combinations thereof; and
 - e) inhibiting fibril formation by inserting the said peptide into the complimentary region of the light chain variable domain.
2. (Previously Amended) The method as recited in claim 1 wherein the method is conducted in a cell.
3. (Canceled)

4. (Canceled)

5. (Previously Amended) The method as recited in claim 1 wherein the peptide is inserted between residue position numbers 60 and 83 of the human kappa-IV light chain.

6. (Canceled)

7. (Previously Amended) The method as recited in claim 1 wherein the peptide is inserted when the protein is partially unfolded.

8. (Canceled)

9. (Canceled)

10. (Previously Amended) The method as recited in claim 7 wherein the peptide is inserted at a hairpin anchorage point in the human kappa-IV protein and its derivatives selected from the group consisting of TDFTLTI (SEQ ID NO: 5), FTLTISS (SEQ ID NO: 1), FTLKISR (SEQ ID NO: 6), FTLEISR (SEQ ID NO: 12), LTLKLSR (SEQ ID NO: 13), and combinations thereof.

11-13. (Canceled)

14. (Withdrawn) A peptide for insertion in an intact human kappa-IV light chain variable domain, the peptide comprising the following amino acid sequence:

Phe₇₁-Thr₇₂-Leu₇₃-Thr₇₄-Ile₇₅-Ser₇₆-Ser₇₇

wherein the subscript numbers are the residue location points in the domain.

15-30. (Canceled)

31. (Currently Amended) ~~The method as recited in claim 30~~ A method for preventing fibril assembly of human kappa-IV immunoglobulin, the method comprising:

- a) identifying the residues of the peptide that contribute to fibril formation by mutating the amino acid sequence of human kappa-IV immunoglobulin;
and
- b) blocking said fibril formation by inserting biological molecules into the amino acid sequence, wherein the biological molecules are peptides selected from the group consisting of TDFTLTI (SEQ ID NO: 5), FTLTISS (SEQ ID NO: 1), FTLKISR (SEQ ID NO: 6), FTLEISR (SEQ ID NO: 12), LTLKLSR (SEQ ID NO: 13), and combinations thereof.

32. (Canceled)

33. (Currently Amended) ~~The method as recited in claim 32~~ A method for minimizing the aggregation tendencies of human kappa-IV immunoglobulin light chain protein in a cell, the method comprising:

- a) expressing the protein in a cell;
- b) identifying the residues of a peptide that contribute to fibril formation by mutating the amino acid sequence of the protein; and
- c) interacting the peptide with the cell to inhibit fibril formation wherein the peptide is selected from a group consisting of TDFTLTI (SEQ ID NO: 5), or FTLTISS (SEQ ID NO: 1), or FTLKISR (SEQ ID NO: 6), or FTLEISR (SEQ ID NO: 12), or LTLKLSR (SEQ ID NO: 13).

34. (Currently Amended) The method as recited in claim ~~32~~ 33 wherein the peptide contains an amino acid sequence which is also contained in the protein.

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35. (New) The method are recited in claim 31 wherein the biological molecules are inserted when the amyloid forming protein is partially unfolded.